

What is claimed is:

1. A cardiopulmonary life support system comprising:
  - a) a housing defined by a top side, a bottom side, and an inner periphery;
  - 5 b) first and second tubes adjacent to each other in the housing, wherein the first and second tubes each have an input port and an output port; and
  - c) an alternating member attached to the housing and disposed between the first and second tubes,  
10 wherein the alternating member alternately squeezes the first and second tubes.
2. The life support system of claim 1 further comprising a solid tube support fitted between said each tube and  
15 the inner periphery of the housing.
3. The life support system of claim 2 wherein the alternating member is solid.
- 20 4. The life support system of claim 3 wherein the output port of the first tube passes through the top side and the output port of the second tube passes through the bottom side of the housing.
- 25 5. The life support system of claim 4 wherein the first and

second tubes are linearly aligned substantially  
parallel with each other.

6. The life support system of claim 5 wherein the first and  
5 second tubes are each formed of a flexible material.

7. The life support system of claim 6 wherein the first and  
second tubes are each formed of a polymer.

10 8. The life support system of claim 7 wherein the first and  
second tubes are silicon tubes.

9. The life support system of claim 8 wherein the first and  
second tubes are each elastically, substantially  
15 restored to its original shape after being squeezed by  
the alternating member.

10. A cardiopulmonary life support system comprising:

- 20 a) a housing defined by a top side, a bottom, a rear  
side, and an inner periphery;
- b) first and second tubes adjacent to each other in  
the housing, wherein the first and second tubes  
each have an input port and an output port;
- 25 c) an alternating member attached to the housing and  
disposed between the first and second tubes,

wherein the alternating member alternately  
squeezes the first and second tubes; and

- d) a valve formed in said each input and output port  
to prevent a reverse stream in the first and second  
tubes.

11. The life support system of claim 10 further comprising:

- a) a solid tube support fitted between said each tube  
and the inner periphery of the housing; and  
b) a shaft substantially parallel to the tubes,  
wherein the shaft has a top portion rotatably  
attached to the top side, a mid portion fixedly  
attached to the alternating member, and a bottom  
portion rotatably passing through the bottom side  
of the housing, whereby an angular reciprocal  
rotation of the shaft enables the alternating  
member to alternately squeeze the first and second  
tubes.

12. The life support system of claim 11 further comprising:

- a) a motor adjacent to the housing;  
b) a decelerator connected to the motor; and  
c) a first gear having a gear base connected to the  
decelerator, wherein the first gear is rotatably  
connected to the shaft.

13. The life support system of claim 12 further comprising  
a second gear having a gear base attached to the bottom  
portion of the shaft, wherein the second gear is  
5 rotatably engaged to the first gear.

14. The life support system of claim 13 wherein a male spline  
is fixed to the bottom portion of the shaft by a base  
thereof, and a female spline is fixed to the second gear  
10 base by a base thereof, wherein the male spline is  
detachable engaged to the female spline.

15. The life support system of claim 10 wherein a support  
plate extends from the mid portion of the shaft fixedly  
15 to the alternating member to stabilize the angular  
reciprocal rotation of the alternating member.

16. The life support system of claim 10 wherein the first  
and second tubes are linearly aligned substantially  
20 parallel with each other.

17. The life support system of claim 10 wherein the first  
and second tubes are each elastically, substantially  
restored to its original shape after being squeezed by  
25 the alternating member.

18. The life support system of claim 10 wherein said each valve is a one-way valve to allow a single directional stream therethrough.

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19. The life support system of claim 10 wherein an initial squeezing of the alternating member on the first tube enables a blood to partially pump out from the first tube through the first tube output port, wherein a subsequent squeezing of the alternating member on the second tube enables the blood to partially pump out from the second tube through the second tube output port while a restoration of the first tube to its original shape enables the first tube to suck in as much as pumped out therefrom through the first input port valve, wherein a further subsequent squeezing of the alternating member on the first tube enables the blood to partially pump out from the first tube through the first tube output port while a subsequent restoration of the second tube to its original shaft enables the second tube to suck in as much as pumped out therefrom through the second input port valve.

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20. The life support system of claim 10 wherein the output port of the first tube passes through the top side and

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the output port of the second tube passes through the bottom side of the housing.

21. A cardiopulmonary life support system comprising:

- 5 a) a housing defined by a top side, a bottom, a rear side, and an inner periphery;
- b) first and second tubes adjacent to each other in the housing, wherein the first and second tubes each have an input port and an output port;
- 10 c) an alternating member attached to the housing and disposed between the first and second tubes, wherein the alternating member alternately squeezes the first and second tubes;
- d) a valve formed in said each input and output port to prevent a reverse stream in the first and second tubes; and
- 15 e) an oxygenator connected to the output port of the first tube and the input port of the second tube to convert an oxygen-depleted blood to an
- 20 oxygen-rich blood.

22. The life support system of claim 21 further comprising first and second blood storages, wherein the first blood storage is formed between the oxygenator and the input port of the first tube to temporarily store therein the

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oxygen-rich blood oxygenated in the oxygenator, wherein the second blood storage is connected to the output port of the second tube to temporarily store therein the oxygen-depleted blood.

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23. The life support system of claim 22 wherein an initial squeezing of the alternating member on the first tube enables the oxygen-rich blood to partially pump out from the first tube through the first tube output port, wherein a subsequent squeezing of the alternating member on the second tube enables the oxygen-depleted blood to partially pump out from the second tube through the second output port while a restoration of the first tube to its original shape enables the first tube to suck in as much as pumped out therefrom through the first input port valve, wherein a further subsequent squeezing of the alternating member on the first tube enables the oxygen-rich blood to partially pump out from the first tube through the first output port while a subsequent restoration of the second tube to its original shaft enables the second tube to suck in as much as pumped out therefrom through the second input port valve.

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24. The life support system of claim 22 further comprising:  
a) a solid tube support fitted between said each tube

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and the inner periphery of the housing; and  
b) a shaft substantially parallel to the tubes,  
wherein the shaft has a top portion rotatably  
attached to the top side, a mid portion fixedly  
5 attached to the alternating member, and a bottom  
portion rotatably passing through the bottom side  
of the housing, whereby an angular reciprocal  
rotation of the shaft enables the alternating  
member to alternately squeeze the first and second  
10 tubes.

25. The life support system of claim 24 further comprising:

- a) a motor adjacent to the housing;
- b) a decelerator connected to the motor; and
- 15 c) a first gear having a gear base connected to the  
decelerator, wherein the first gear is rotatably  
connected to the shaft.

26. The life support system of claim 25 further comprising  
20 a second gear having a gear base attached to the bottom  
portion of the shaft, wherein the second gear is  
rotatably engaged to the first gear.

27. The life support system of claim 26 wherein a male spline  
25 is fixed to the bottom portion of the shaft by a base



thereof, and a female spline is fixed to the second gear base by a base thereof, wherein the male spline is detachably engaged to the female spline.

5 28. The life support system of claim 27 wherein a support plate extends from the mid portion of the shaft fixedly to the alternating member to stabilize the angular reciprocal rotation of the alternating member.

10 29. The life support system of claim 28 wherein the first and second tubes are linearly aligned substantially parallel with each other.

15 30. The life support system of claim 29 wherein the first and second tubes are each elastically restored to its original shape after being squeezed by the alternating member.

20 31. The life support system of claim 30 wherein said each valve is a one-way valve to allow a single directional stream therethrough.

25 32. The life support system of claim 31 wherein the output port of the first tube passes through the top side and the output port of the second tube passes through the

bottom side of the housing.

33. The life support system of claim 21 wherein the first  
tube output port is to be connected to an aorta of a  
5 mammal body and the second tube input port is to be  
connected to a main vein of the mammal body, whereby the  
oxygen-depleted blood from the main vein is oxygenated  
and regularly pumped out into the aorta.